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Kongsted, H.; Jonach, Beata Renata; Haugegaard, S.; Jorsal, Sven Erik Lind; Jensen, Tim Kåre; Nielsen, J. P.

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Gross and histological lesions associated with a new neonatal porcine diarrhoea syndrome (NNPD) in piglets

Kongsted, H.[1], Jonach, B.[2], Haugegaard, S[1], Jorsal, S.E.[2], Jensen, T.K.[2], Nielsen, J.P.[3]
[1]Pig Research Centre, Danish Agriculture & Food Council, Denmark. hko@lf.dk
[2]National Veterinary Institute, Technical University of Denmark, Denmark
[3]Department of large animal sciences, University of Copenhagen, Denmark

Objective: The aim of this study was to evaluate gross and histological lesions in diarrhoeic and non-diarrhoeic piglets from four Danish herds having a 1-2 year history of severe neonatal diarrhoea with an unknown etiological background (based upon traditional diagnostic methods for detection of ETEC, C. perfringens and rotavirus A).

Methods: 51 diarrhoeic and 50 non-diarrhoeic piglets were euthanized at the age of 3-7 days. Necropsies and histological evaluations were performed. One-sided Fisher's exact tests were used to test differences between diarrhoeic and non-diarrhoeic piglets across and within herds (α=0.05).

Results: Are presented in table 1.

Conclusion: Neonatal piglets suffering from NNPD had necropsy and histological lesions which differentiated them from non-diarrhoeic piglets. A poor body condition, dehydration, flaccidity of intestines and intestinal villous atrophy were the most significant findings in the diarrhoeic piglets.

Lesion		Diarrhoeic (%)	Non-diarrhoeic (%)	P-value*
Necropsy	Poor body condition	57	4	< 0.0001 [4]
	Dehydration	29	2	< 0.0001 [2]
	Empty stomach	0	12	1
Small intestines	Flaccidity	73	20	< 0.0001 [3]
	Watery contents	57	30	0.01 [2]
	Hyperaemia of serosa	6	0	0.2
	Enlargement of lymphnodes	18	16	0.9
	Striping of serosa	2	0	1
	Edema in mesentery	4	4	1
	Dullness/ necrosis of mucosa	8	8	1
	Villous atrophy	63	12	< 0.0001 [3]
	Epithelial lesions	20	6	0.04 [1]
	Mucosal necrosis	6	0	0.12
	Neutrophil infiltration	33	32	0.5
Large intestines	Flaccidity	53	6	< 0.0001 [3]
	Liquid contents	48	10	< 0.0001 [3]
	Edema in mesentery	39	20	0.06
	Enlargement of lymphnodes	4	2	1
	Epithelial lesions	33	11	0.01 [2]
	Mucosal necrosis	2	0	0.5

Table 1. Lesions in 51 diarrhoeic and 50 non-diarrhoeic piglets from four herds. *: One-sided Fisher´s exact test across herds. Significant associations were also tested within each herd. The numbering ([1-4]) indicate within how many herds, a significant association was found.

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